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175. Proposed by M. E. GRABER, A. B., Instructor in Mathematics and Physics, Heidelberg University, Tiffin, Ohio.

Find the volume of the cono-cuneus determined by $z^2+a^2y^2/x^2=c^2$, which is contained between the planes $x=0$ and $x=a$. Ans. $\frac{1}{2}\pi c^2a$. [Todhunter's *Integral Calculus*, p. 189, No. 28.]

MECHANICS.

165. Proposed by O. W. ANTHONY, Head of the Mathematical Department, DeWitt Clinton High School, New York City.

Find the approximate form of a tower of circular cross section 1000 feet high and having a radius of lower base 20 feet, and so constructed that all the parts of the structure shall be subject to the same stress, due to the weight of the part of the tower above.

166. Proposed by G. B.M. ZERR, A. M., Ph. D., Parsons, West Va.

If a gravitating particle of mass m be placed at the point (a, b, c) prove that the work required to move a particle of unit mass from the point (x, y, z) to an infinite distance is $m[(x-a)^2+(y-b)^2+(z-c)^2]^{-\frac{1}{2}}$. Prove also that

$$\left(\frac{d^2}{dx^2}+\frac{d^2}{dy^2}+\frac{d^2}{dz^2}\right)\{m[(x-a)^2+(y-b)^2+(z-c)^2]^{-\frac{1}{2}}\}=0,$$

except when $x=a$, $y=b$, $z=c$.

MISCELLANEOUS.

143. Proposed by G. W. GREENWOOD, B. A. (Oxon), Professor of Mathematics and Astronomy, McKendree College, Lebanon, Ill.

If $A+B+C=180°$, show that $1-\cos^2A-\cos^2B-\cos^2C-2\cos A\cos B\cos C=0$.

144. Proposed by L. E. DICKSON. Ph. D., Assistant Professor of Mathematics, The University of Chicago.

Burnside, in his systematic search for all simple groups of orders from 661 to 1092 (*Proc. Lond. Math. Soc.*, 1895, pp. 333-338) overlooked the orders $792=2^3.3^2.11$ and $1008=2^4.3^2.7$. The former is immediately excluded. Discuss the latter order.

NOTES.

Beginning with January, 1904, the *Mathematical Supplement of School Science* will be published bi-monthly, as a separate magazine entitled *School Mathematics*.

At the Christmas meeting of the San Francisco Section of the American Mathematical Society the following officers were elected for the coming year: Chairman, Professor R. E. Allardice; Secretary, Professor G. A. Miller; Program Committee, Professors M. W. Haskell, Irving Stringham, and G. A. Miller.